

FIG. 1

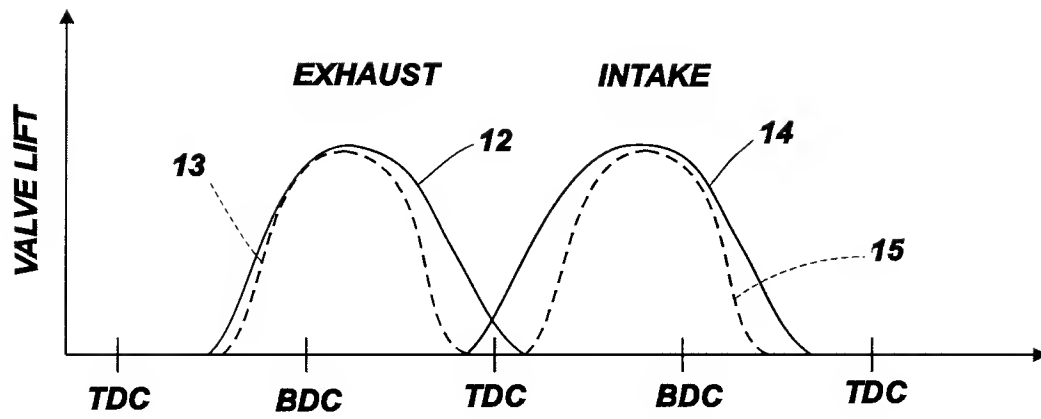


FIG. 2

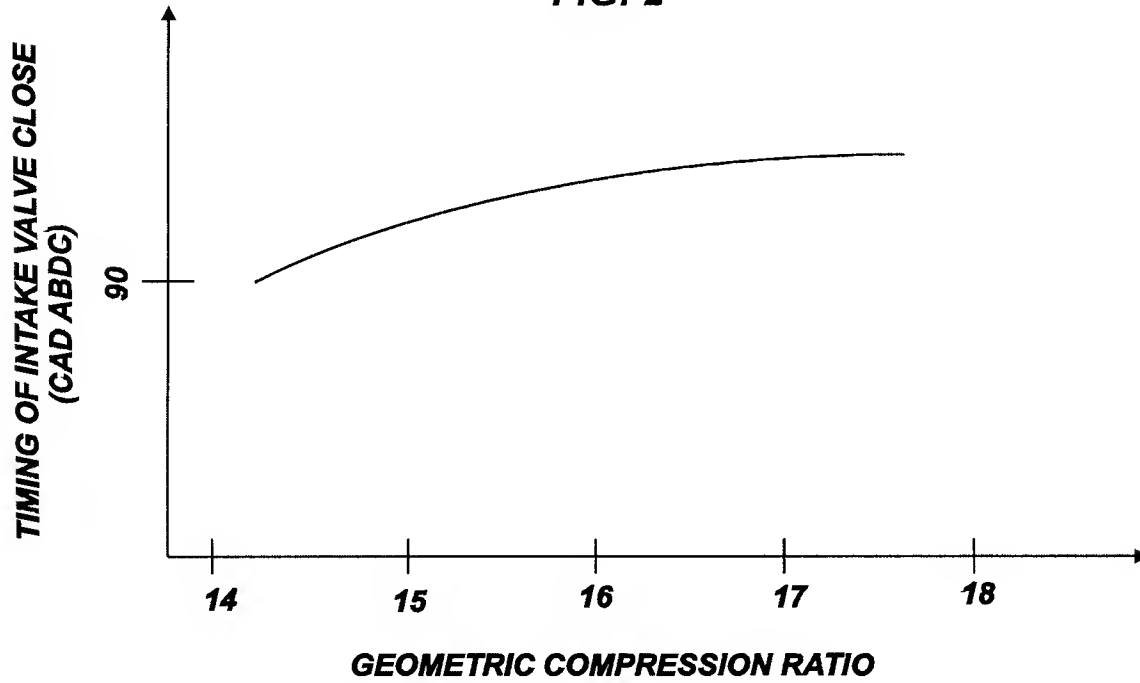


FIG. 3

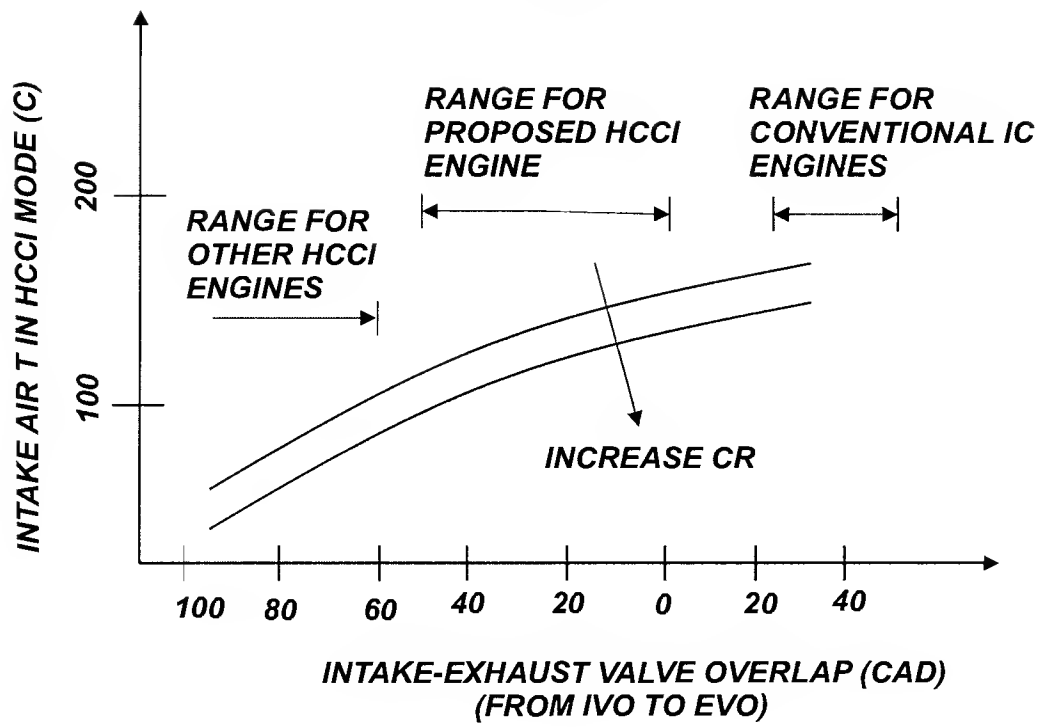


FIG. 4

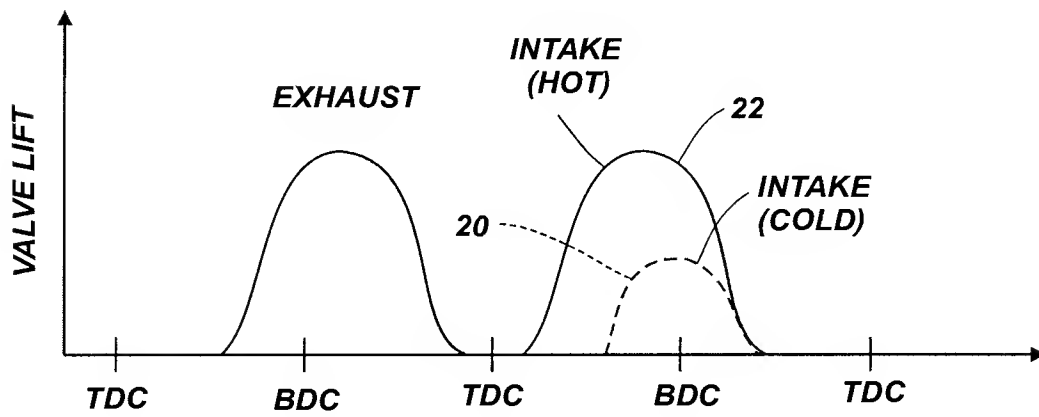


FIG. 5(A)

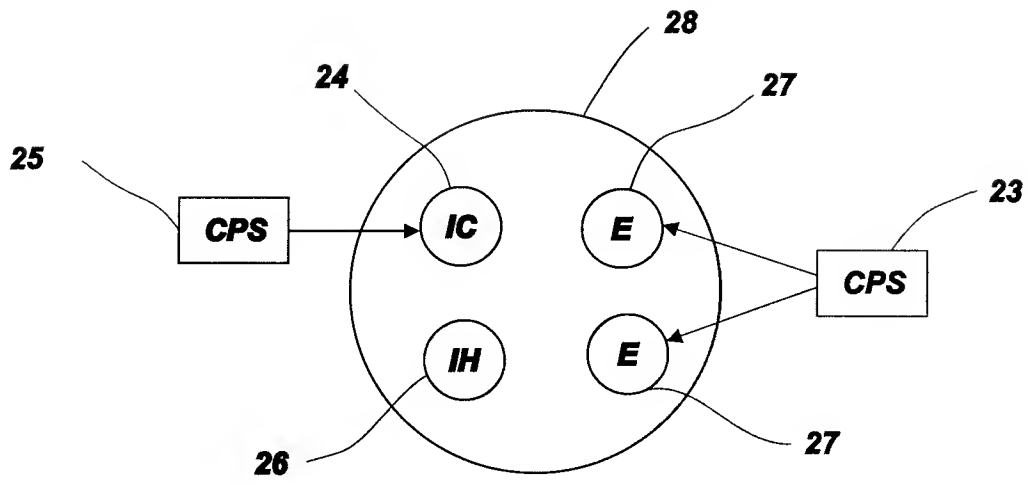
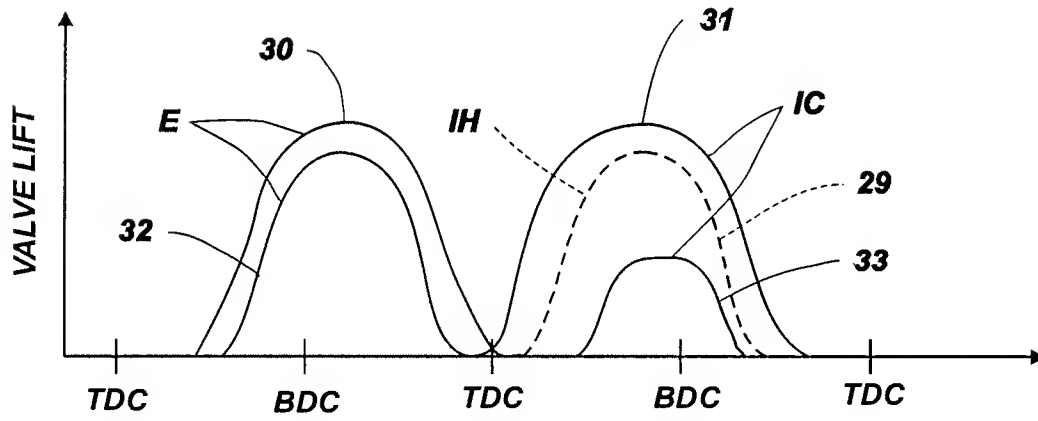


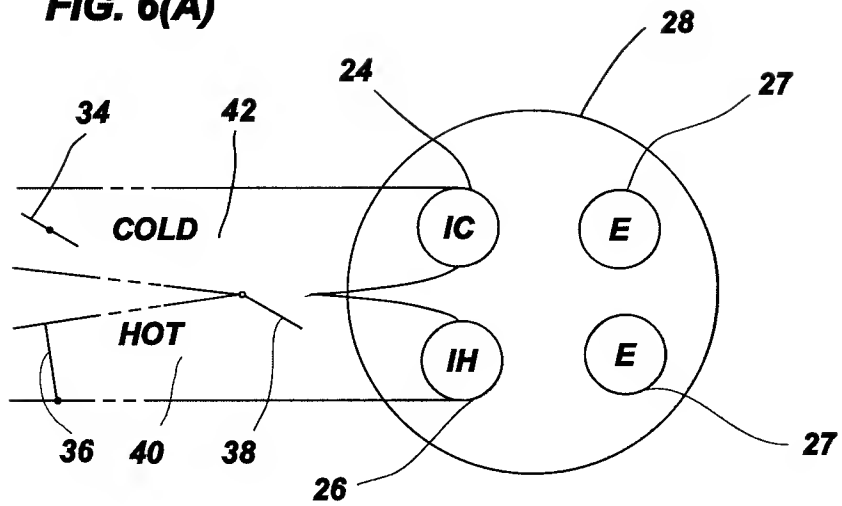
FIG. 5(B)



LIFT PROFILE	EVENT LENGTH (CAD)	NORMALIZED VALVE MAX. LIFT	VALVE OPEN TIMING	VALVE CLOSE TIMING
INTAKE IC-OUTER	280 ~ 320	1	0 ~ 15 CAD BTDC	95 ~ 125 CAD ABDC
INTAKE IC-INNER	150 ~ 210	0.3 ~ 0.7	-50 ~ 0 CAD BTDC	25 ~ 45 CAD ABDC
INTAKE IH	170 ~ 210	1	-35 ~ 0 CAD BTDC	25 ~ 45 CAD ABDC
EXHAUST E-OUTER	230 ~ 250	1	50 ~ 70 CAD BBDC	0 ~ 20 CAD ATDC
EXHAUST E-INNER	190 ~ 220	0.8 ~ 0.95	40 ~ 60 CAD BBDC	-35 ~ 0 CAD ATDC

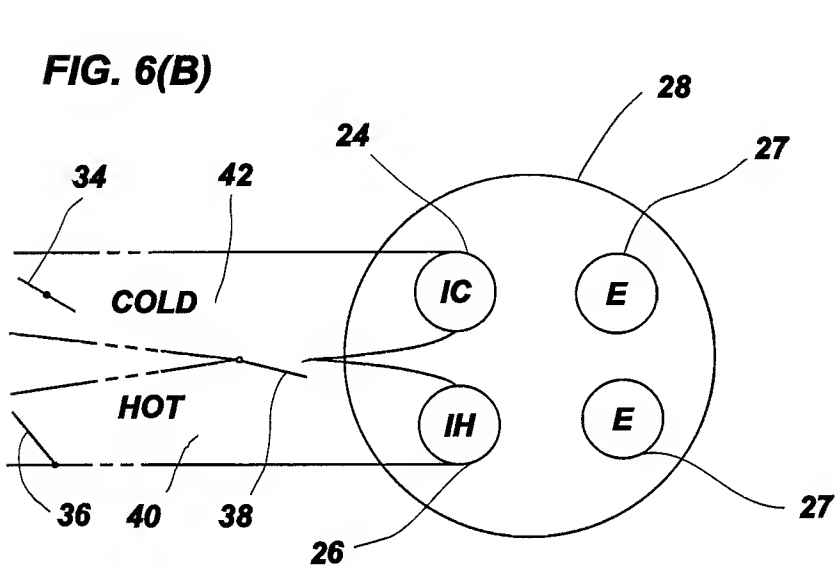
FIG. 5(C)

FIG. 6(A)



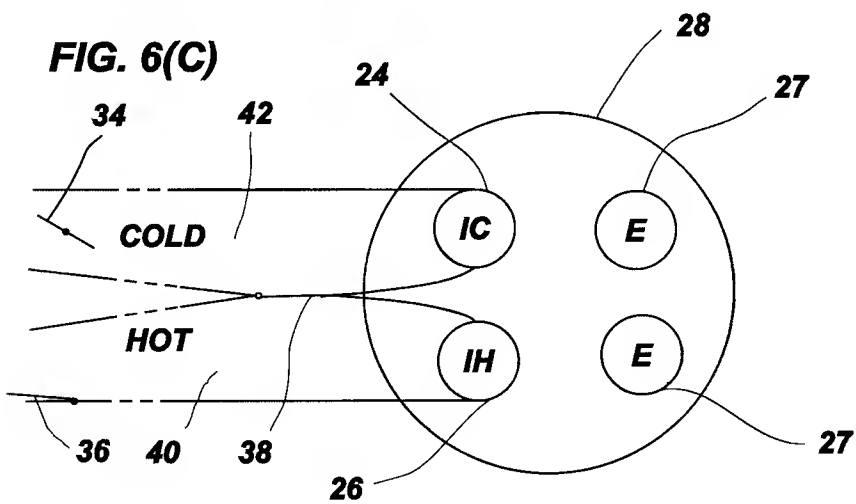
SI MODE	
IC	OUTER PROFILE
E	OUTER PROFILE

FIG. 6(B)



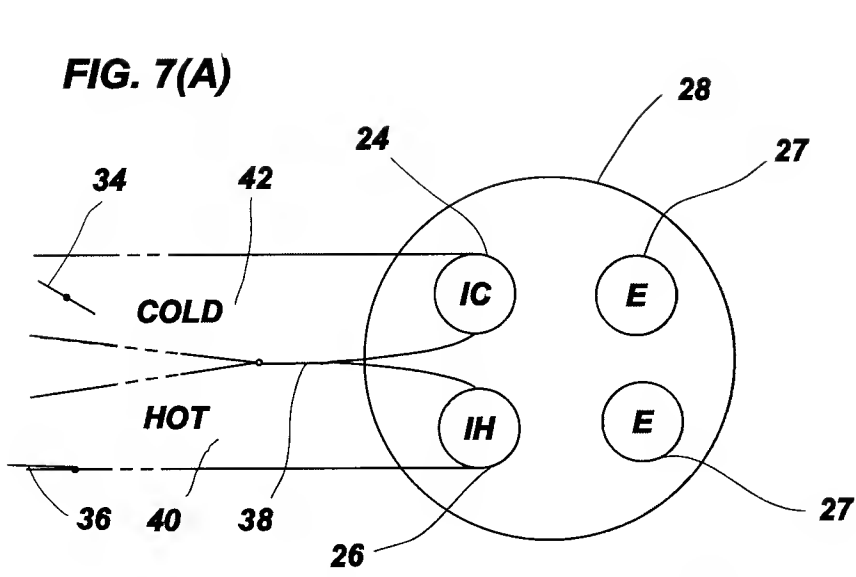
SI MODE	
IC	OUTER PROFILE
E	OUTER PROFILE

FIG. 6(C)



HCCI MODE	
IC	INNER PROFILE
E	INNER PROFILE

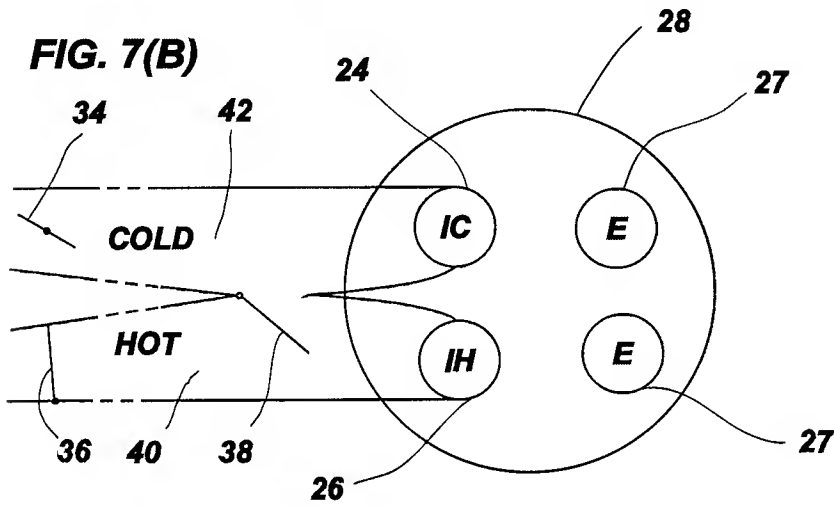
FIG. 7(A)



HCCI MODE

IC	INNER PROFILE
E	INNER PROFILE

FIG. 7(B)



SI MODE

IC	OUTER PROFILE
E	OUTER PROFILE

FIG. 8(A)

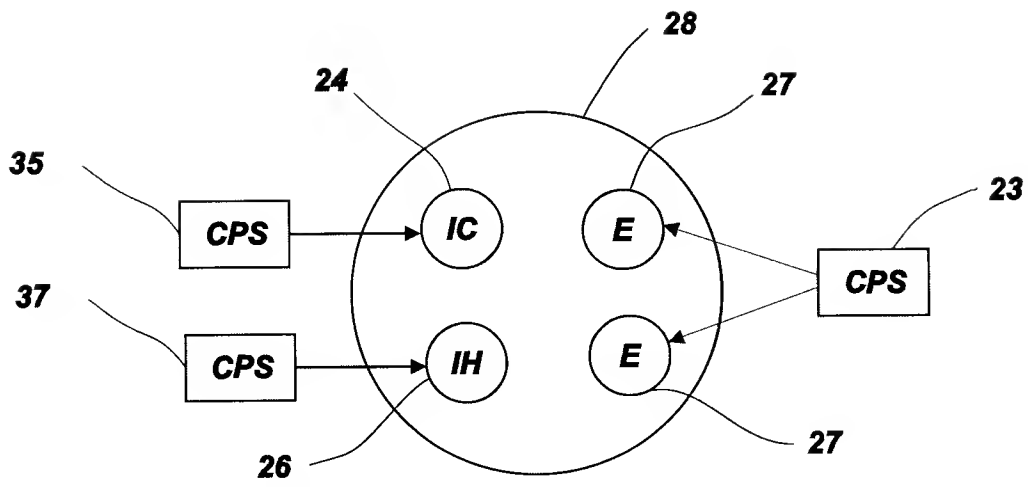
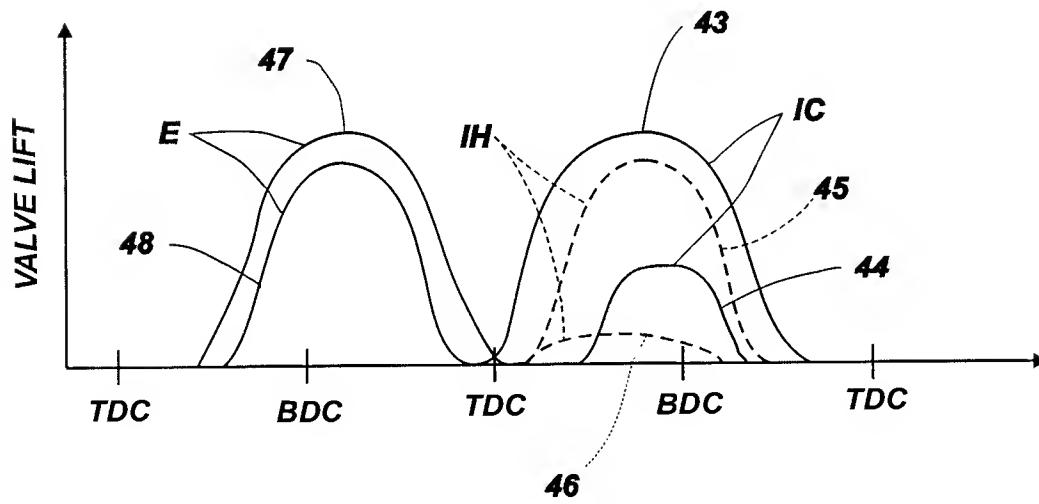


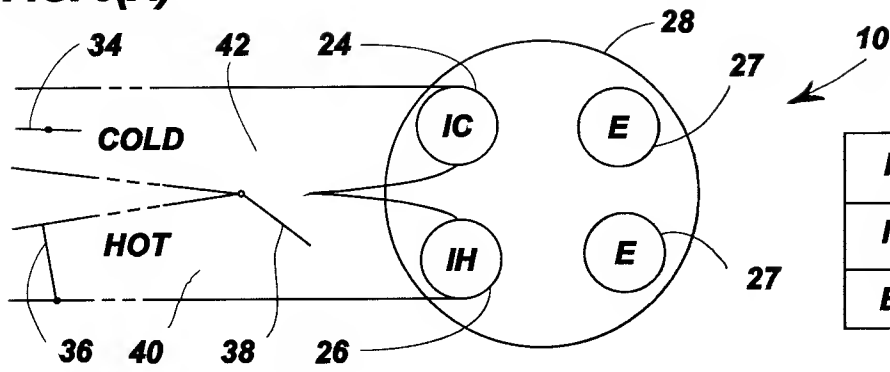
FIG. 8(B)



LIFT PROFILE	EVENT LENGTH (CAD)	NORMALIZED VALVE MAX. LIFT	VALVE OPEN TIMING	VALVE CLOSE TIMING
INTAKE IC-OUTER	280 ~ 320	1	0 ~ 15 CAD BTDC	95 ~ 125 CAD ABDC
INTAKE IC-INNER	150 ~ 210	0.3 ~ 0.7	-50 ~ 0 CAD BTDC	25 ~ 45 CAD ABDC
INTAKE IH-OUTER	170 ~ 210	0.8 ~ 0.95	-35 ~ 0 CAD BTDC	25 ~ 45 CAD ABDC
INTAKE IH-INNER	< 180	< 0.2	-60 ~ 25 CAD BTDC	0 ~ 25 CAD ABDC
EXHAUST E-OUTER	230 ~ 250	1	50 ~ 70 CAD BBDC	0 ~ 20 CAD ATDC
EXHAUST E-OUTER	190 ~ 220	0.8 ~ 0.95	40 ~ 60 CAD BBDC	-35 ~ 0 CAD ATDC

FIG. 8(C)

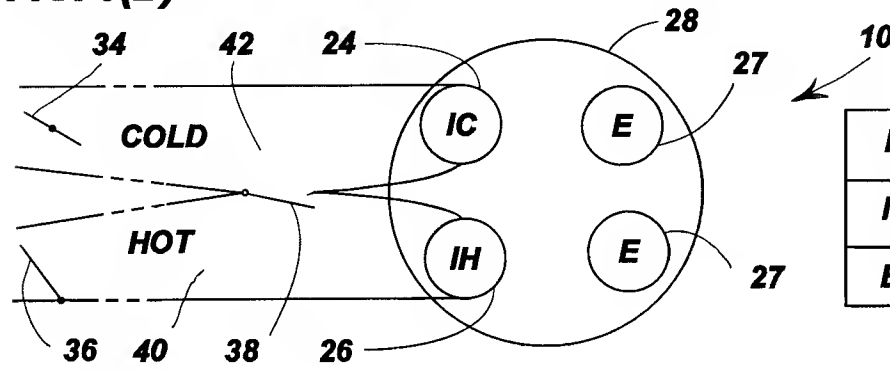
FIG. 9(A)



SI MODE

IC	OUTER PROFILE
IH	OUTER PROFILE
E	OUTER PROFILE

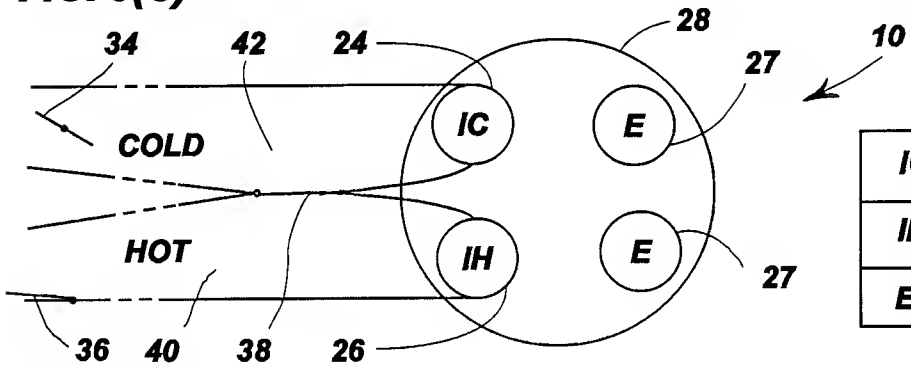
FIG. 9(B)



SI MODE

IC	OUTER PROFILE
IH	INNER PROFILE
E	OUTER PROFILE

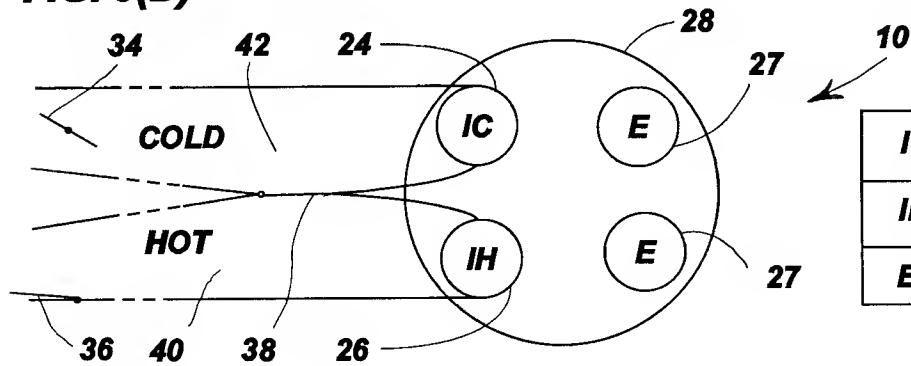
FIG. 9(C)



SI MODE

IC	OUTER PROFILE
IH	INNER PROFILE
E	OUTER PROFILE

FIG. 9(D)



HCCI MODE

IC	INNER PROFILE
IH	OUTER PROFILE
E	INNER PROFILE

FIG. 10(A)

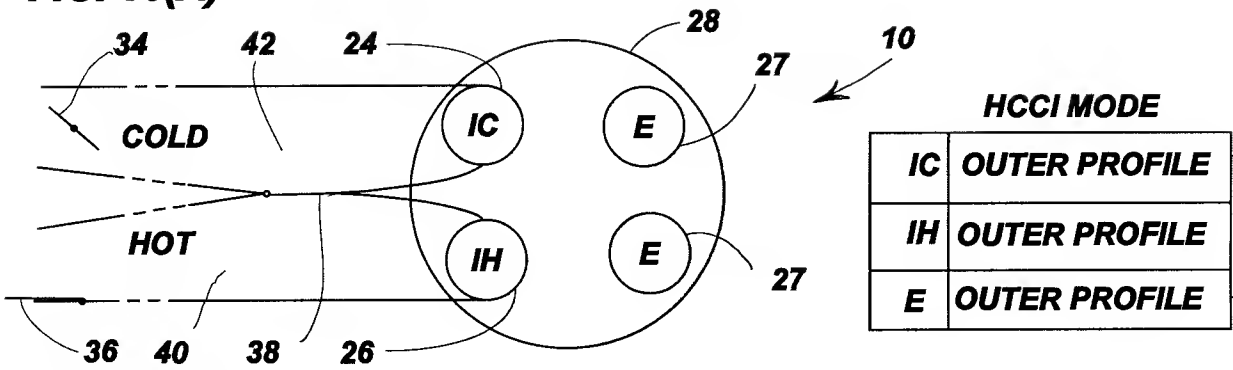


FIG. 10(B)

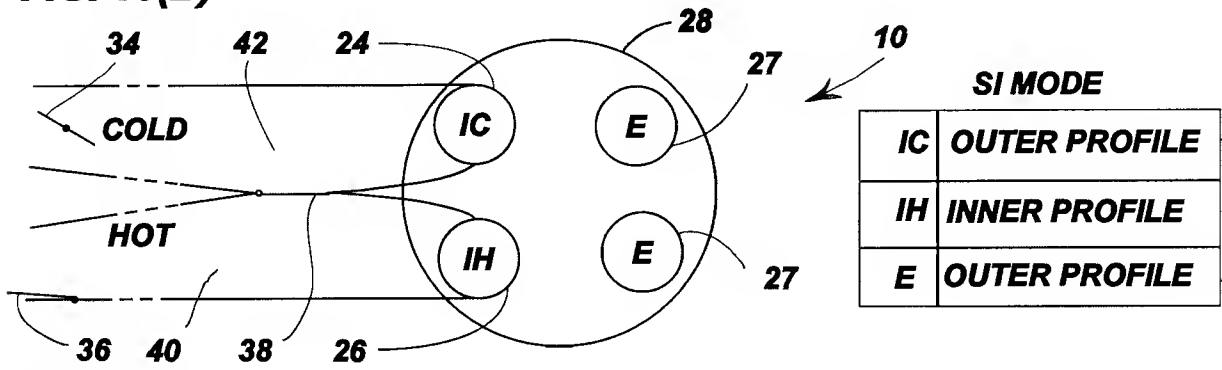


FIG. 10(C)

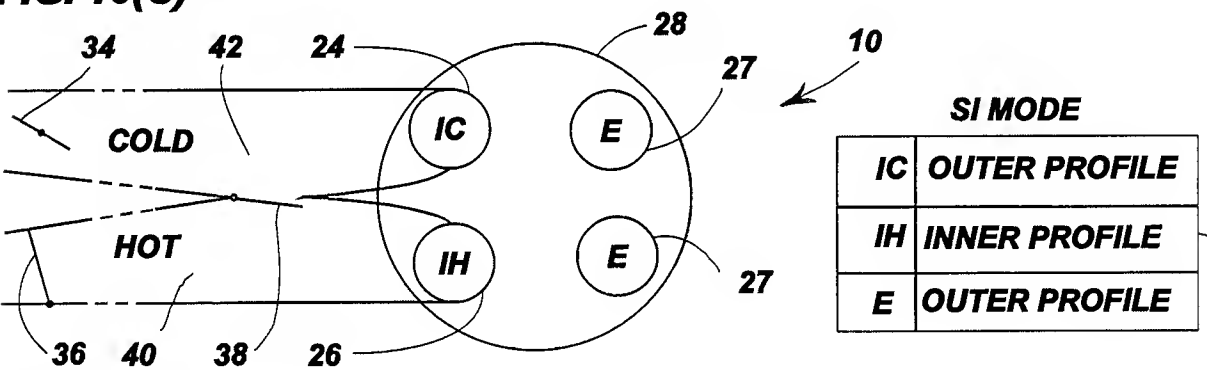


FIG. 10(D)

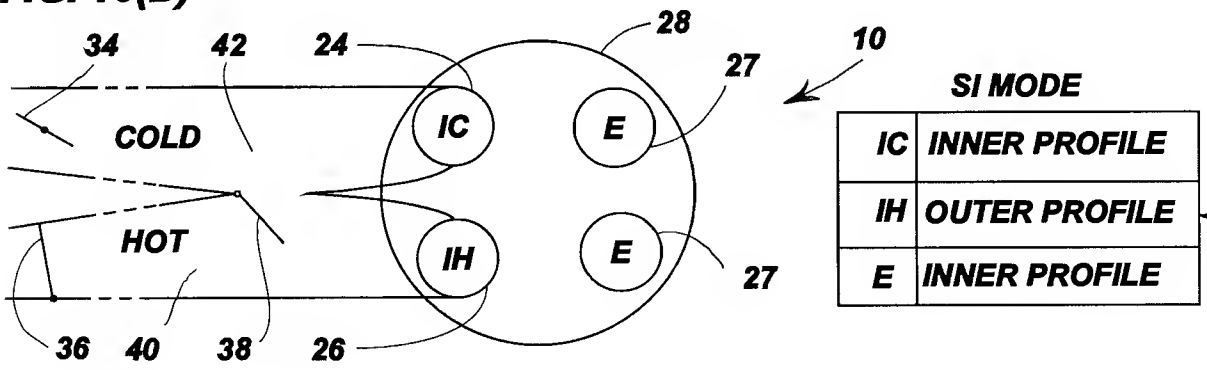


FIG. 11

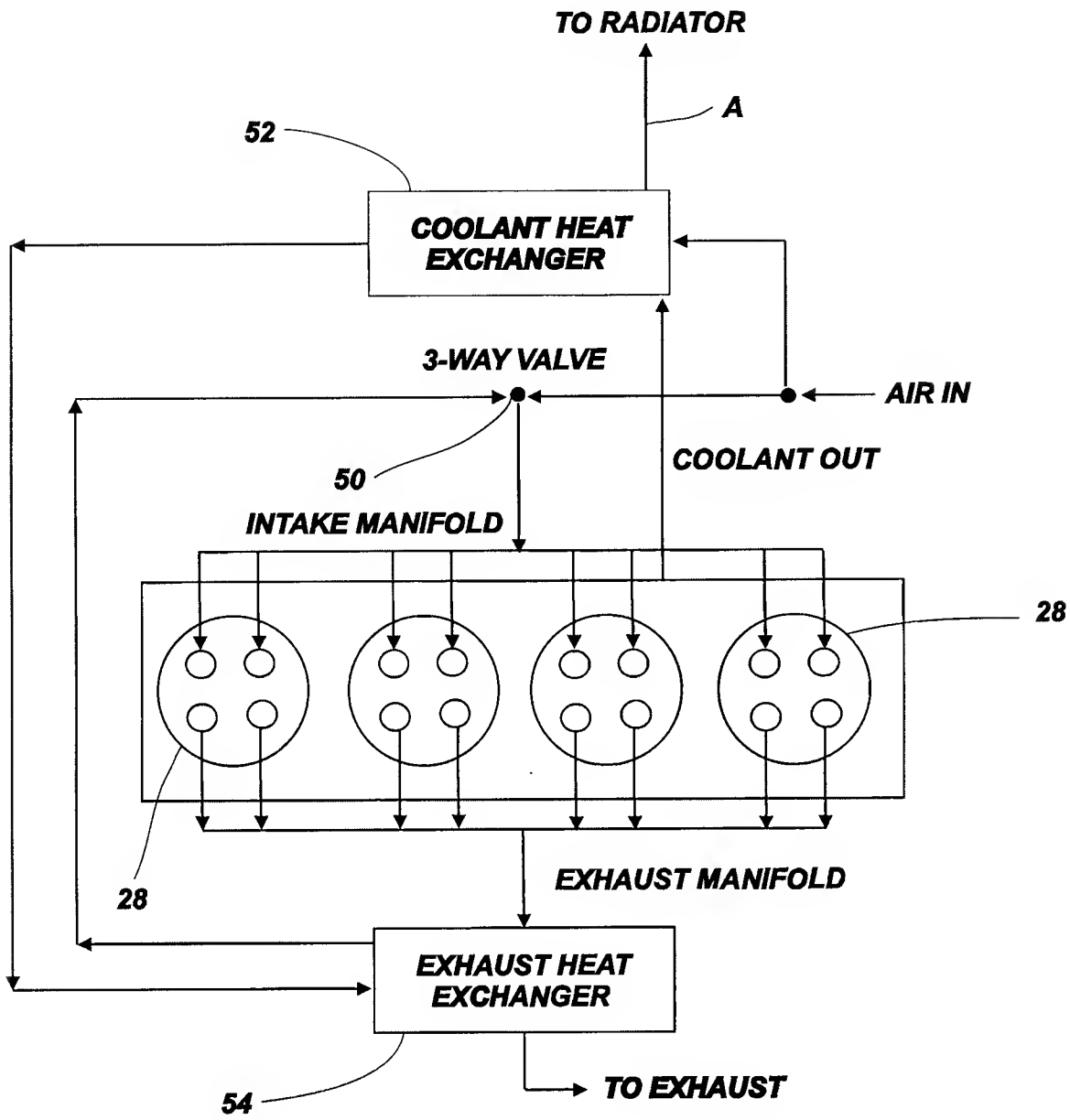


FIG. 12

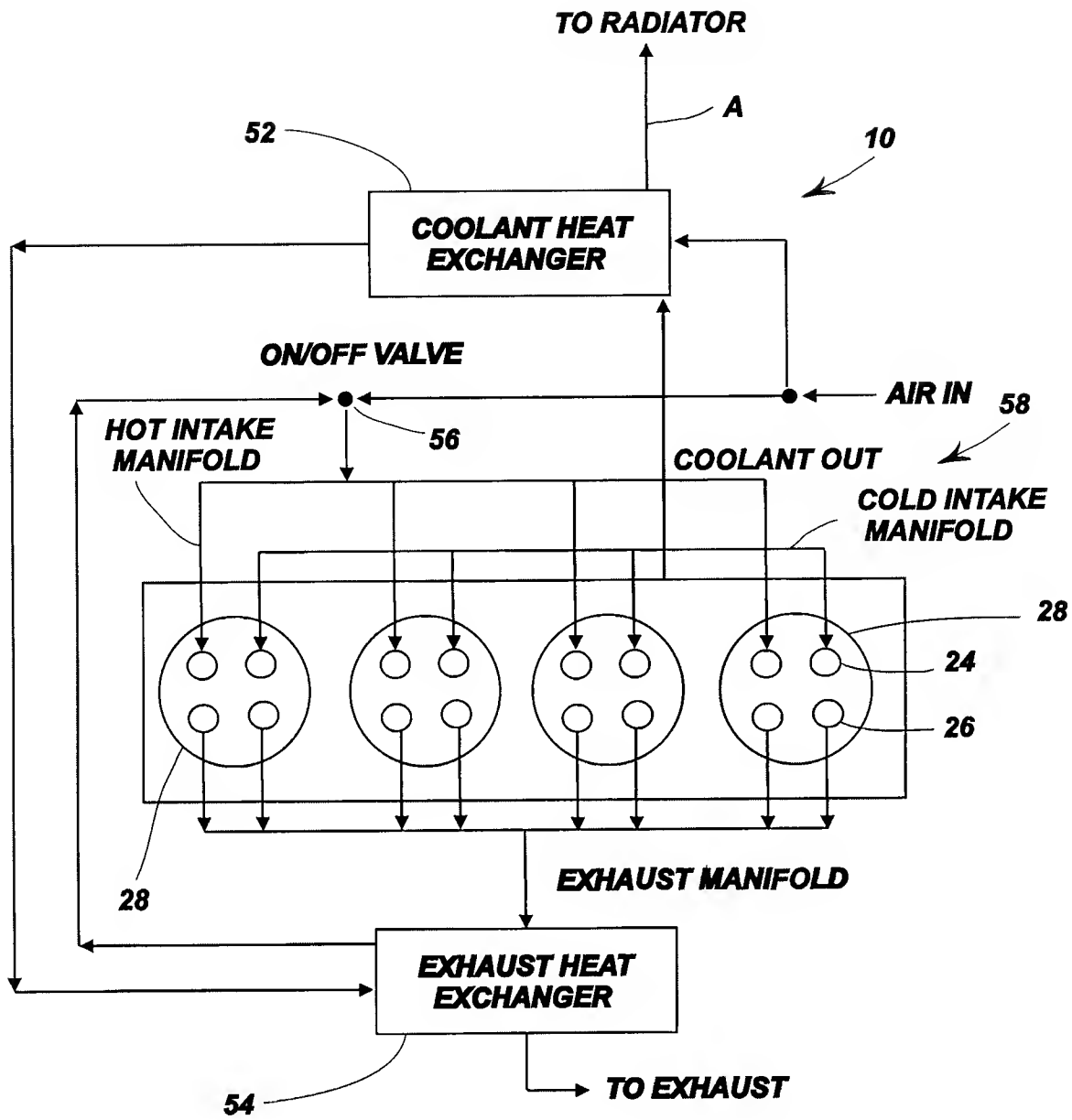


FIG. 13

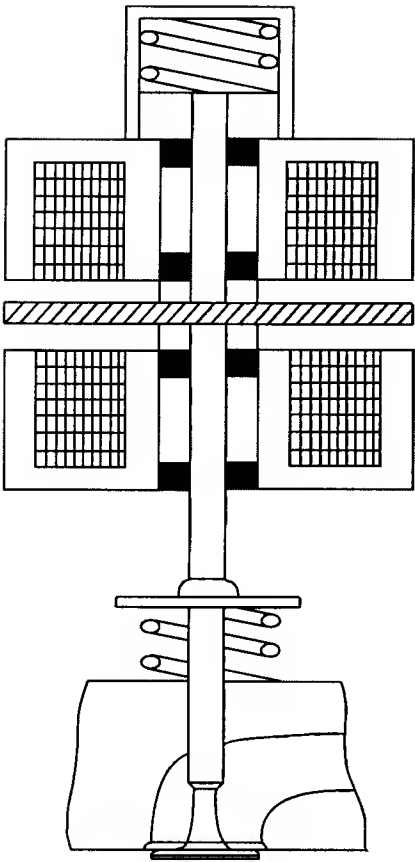


FIG. 14

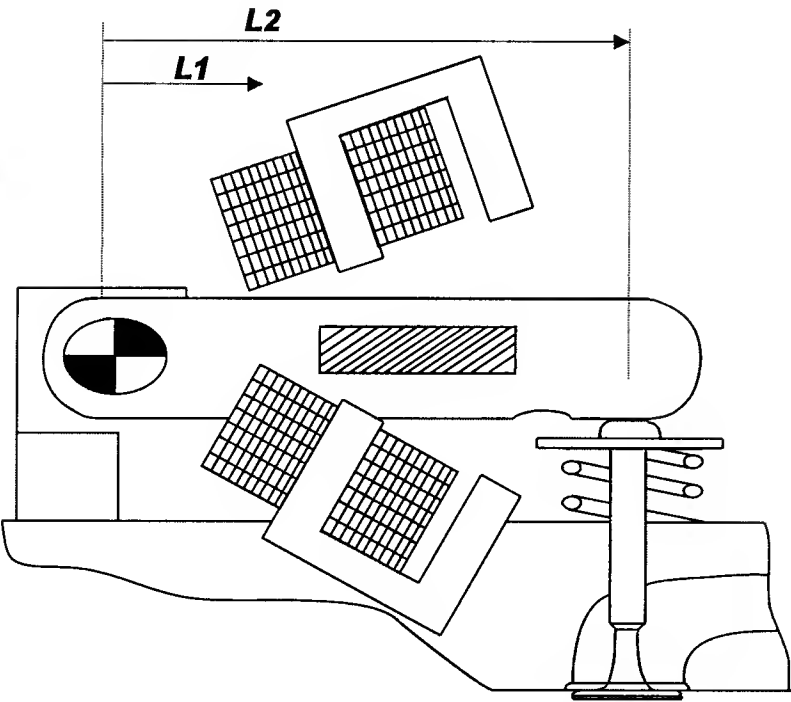
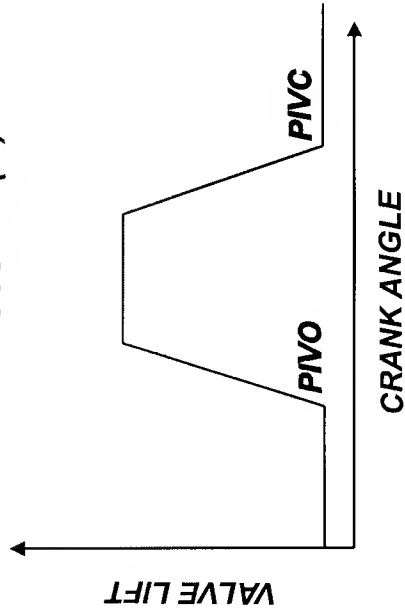
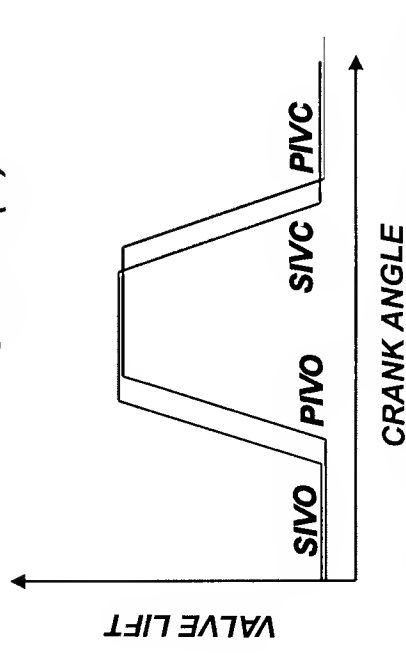


FIG. 15(A)



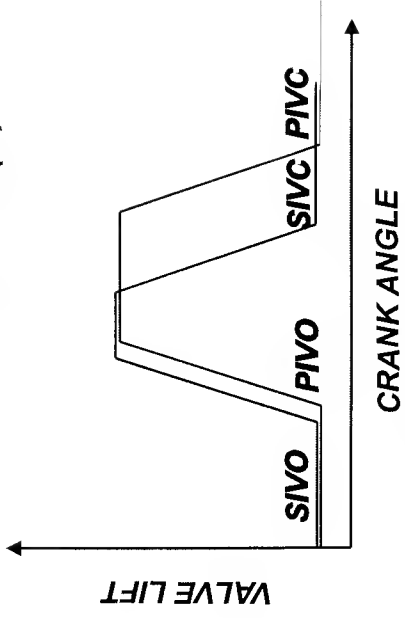
VALVE TIMINGS FOR AMBIENT INTAKE
AIR TEMP; SECONDARY INTAKE VALVES
DO NOT OPEN (FULL COLD)

FIG. 15(C)



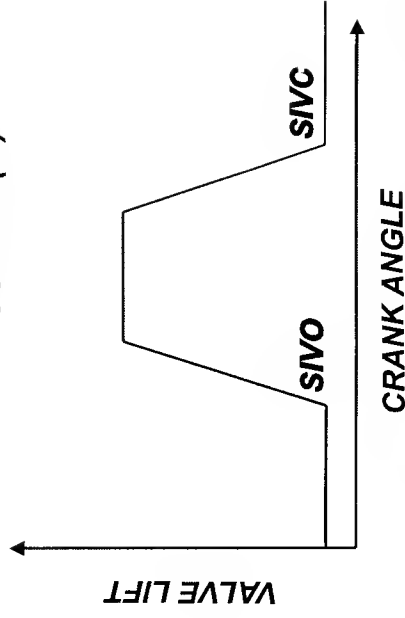
VALVE TIMINGS FOR 120 DEG C INTAKE
AIR TEMP (WARMER)

FIG. 15(B)



VALVE TIMINGS FOR 80 DEG C INTAKE
AIR TEMP (WARM)

FIG. 15(D)



VALVE TIMINGS FOR 180 DEG C INTAKE
AIR TEMP; PRIMARY INTAKE VALVES
DO NOT OPEN (FULL HOT)

FIG. 16

